

Claim 20 has been rejected under 35 U.S.C. §112, second paragraph, as indefinite. The Examiner asserts that the two phrases “forming a first angled layer from second and third fiber material” and “bonding said second and third materials together to form said first angled layer” are confusing since they both refer to a single step rather than two steps.

Claim 20 has been amended to recite “forming a first angled layer by bonding second and third fiber materials, such that the fibers of said second material form a first angled with the fibers of said third material” as suggested on page 2 of the June 6, 2002 Office Action. Applicants respectfully submit that this amendment does not narrow the scope of claim 20 and request withdrawal of this rejection.

Claim 20 has been rejected under 35 U.S.C. §103(a) as obvious over Jackson (U.S. Patent 3,646,610) in view of Sugiyama (JP 08131588), Kusumoto (U.S. Patent 6,106,413), Berg (U.S. Patent 5,984,804) and applicants’ admitted prior art. Claim 20 has also been rejected under 35 U.S.C. §103(a) as obvious over applicants’ admitted prior art in view of Jackson, Sugiyama and Kusumoto.

Applicants traverse these rejections and request reconsideration.

The Examiner contends that Sugiyama “suggests that a first reinforcement layer is especially important in proximity to a first straight layer in order to prevent separation and optimize flexural rigidity” (page 3 of the June 6, 2002 Office Action).

Sugiyama discloses a golf club shaft having a thin hoop reinforced inner layer, a straight layer 102’ surrounding the inner layer 102’, and an angled outer layer 101’ surrounding the straight layer 102’.

“Since the straight layer 102’ is restricted by the hoop reinforced layer 103[’], the deformation of the section of the straight layer 102’ can be prevented and the separation can be prevented even if bending is applied to the shaft ..., and the flexural rigidity improving effect by the straight layer 102’ can be maintained.” (Abstract).

Therefore, Sugiyama teaches that it is necessary to have a straight layer 102’ intimately surrounding the reinforced layer 103’ in order to prevent separation and improve flexural rigidity. Even if there was motivation to combine Sugiyama with Jackson or applicants’ allegedly admitted prior art (which is not admitted here), the resulting golf shaft would include a straight layer intimately surrounding an inner thin hoop reinforced layer.

In contrast, the presently claimed method requires wrapping a first angled layer over an inner first reinforcement layer. Sugiyama teaches away from wrapping an angled layer over a reinforcement layer as in the presently claimed invention.

Berg allegedly suggests that angled layers formed of interlaced or braided fiber strands, such as spirally wound layer 62’ in Jackson, can be alternatively formed in an overlapping fashion. Applicants’ admitted prior art allegedly discloses bonding individual overlapping prepegs to form angled layers.

One of ordinary skill in the art would not have the motivation to combine Berg or applicants’ alleged admitted prior art with Jackson. Jackson states that the

“longitudinal and spirally wound fiber glass strands [such as those in layer 62’] are applied to the mandrel under some tension, and the same is wrapped with a cellophane tape ... prior to curing of the resin whereby all of the strands and filaments are compressed firmly together before the resin is cured.” (col. 5, lines 53-58).

Therefore, Jackson teaches away from forming an angled layer by bonding fibers *prior* to wrapping the angled layer around the mandrel as in the presently claimed method.

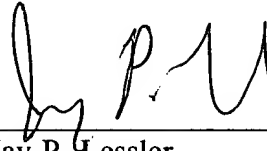
At page 6, first full paragraph, of the June 6, 2002 Office Action, the Examiner states that “the thickness of the second angled layer of Jackson ... would fall between 0.04 and 0.1 millimeters, as these dimensions fall within the conventional ranges used in similar golf clubs.” Applicants respectfully request the Examiner to either provide a reference establishing this thickness or an Examiner’s affidavit to this effect.

For the foregoing reasons, the cited references either alone or in combination fail to render obvious the presently claimed invention. Accordingly, this rejection should be withdrawn.

In view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner’s Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'Jay P. Lessler', is written over a horizontal line.

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Marked-Up Claim
Accompanying November 6, 2002 Response
For U.S. Serial No. 09/473,495
(Docket No. 9626/1L206-US1)

20. (Amended) A method for forming a golf club shaft around a mandrel having a length along a longitudinal axis, the steps comprising:

forming a first reinforcement layer from a first fiber material, said first fiber material having fibers aligned along a single direction;

forming a first angled layer by bonding [from] second and third fiber materials, such that the fibers of said second material form a first angle with the fibers of said third material, said second and third materials having fibers aligned along a single direction;

[bonding said second and third materials together to form said first angled layer, such that said fibers of said second material form a first angle with said fibers of said third material;]

forming a first straight layer from a fourth fiber material, said fourth fiber material having fibers aligned along a single direction;

forming a second angled layer from fifth and sixth fiber material, said fifth and sixth materials having fibers aligned along a single direction;

bonding said fifth and sixth fiber materials together to form said second angled layer, such that said fibers of said fifth and sixth material form a second angle in the range of from 70-150 degrees and said second angled layer has a thickness in the range of from 0.04 to 0.1 mm;

forming a second straight layer from a seventh fiber material, said seventh fiber material having fibers aligned along a single direction;

forming a second reinforcement layer from an eighth fiber material, said fiber material having fibers aligned along a single direction;

wrapping said first reinforcement layer around said mandrel such that said fibers of said first reinforcement layer are aligned 90 degrees with respect to said longitudinal axis;

wrapping said first angled layer around said first reinforcement layer such that said first angle of said fiber material of said first angled layer is bisected by said longitudinal axis;

wrapping said first straight layer around said first angled layer such that said fibers of said first straight layer are aligned with said longitudinal axis;

wrapping said second angled layer around said first straight layer such that said second angle of said fiber material of said second angled layer is bisected by said longitudinal axis;

wrapping said second straight layer around said second angled layer such that said fibers of said second straight layer are aligned with said longitudinal axis;

wrapping second reinforcement layer around said second straight layer to form a layered wrap, such that said fibers of said second reinforcement layer are aligned with said longitudinal axis;

curing said layered wrap in an oven to form a cured shaft;

removing said mandrel from said cured shaft; and

trimming ends said cured shaft to produce said golf club shaft.